REMARKS

Applicant respectfully requests reconsideration of the above identified application. Claims 1-30 are pending. Claims 1-30 are rejected.

Applicant respectfully notes that in the Office Action mailed on November 3, 2004, interpretations or characterizations by the Examiner, include inferences and/or potential limitations, to which Applicant does not agree.

Applicant respectfully submits the following arguments to more clearly point out the patentable novelty of the claims.

The remaining comments are directed to Claims 1-30.

35 U.S.C. § 103(a) REJECTIONS

The Office Action mailed on November 3, 2004 rejects Claims 1-30 under 35 U.S.C. 103(a) as allegedly being unpatentable over US Pat. No. 5,872,980 (Derrick) in view of US Pat. No. 6,148,395 (Dao).

Claim 1 sets forth an article of manufacture including... code stored thereon which, ... causes the machine to... identify an ownership state of a semaphore ...; arbitrate to identify a first modification request ... from a first requesting device; allow the first modification request to succeed if the identified ownership state corresponds to the first requesting device; and allow the first modification request to succeed if the identified ownership state corresponds to no ownership.

The Examiner states with regard to Claims 1, 8, 14, and 17 that Derrick fails to explicitly teach to allow the first modification request to succeed if the identified

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ownership state corresponds to the first requesting device but that it would have been obvious at the time the invention was made because granting requests for semaphore modifications according to an order such as round robin is well known in the art.

The Examiner takes note of Claim 6 which sets forth that arbitration [to identify a first modification request] is resolved on a round-robin basis. Applicant respectfully submits that (1) ordering modification requests by arbitration and (2) allowing the modification requests to succeed are two distinct limitations set forth in Claim 1. The Examiner has pointed out which one of these is absent (2) in the cited references but then has responded to Applicants remarks by stating that, "Derrick teaches... the modification requests are made to succeed as desired."

Applicant respectfully submits that while <u>arbitration to identify a first modification request</u> may be resolved on a round-robin basis, the Examiner has not shown any obvious combination to arrive at <u>allowing the first modification request to succeed</u> if the identified <u>ownership state corresponds to</u> the <u>first requesting device</u>, which is precisely what the Examiner has admitted was not disclosed by the cited reference.

Accordingly, Applicant respectfully maintains that Derrick does not disclose or suggest the subject matter set forth in Claim 1.

The cited references do not disclose or suggest causing a machine that receives the semaphore modification requests to identify an ownership state of the semaphore and to allow the first modification request to succeed if the identified ownership state corresponds to the first requesting device.

Derrick's device simply locks out accesses by other requesting devices to the same semaphore without knowing if it is owned by another master. It is the <u>requesting device</u> of Derrick, rather than <u>a machine to receive the requests</u>, that checks to see if the shared resource is owned by another device (Fig. 2, steps 204 and 206, col. 3, lines 57-64).

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The Examiner alleges that Applicant has interposed the "prior art" deficiencies described in Derrick with the solution provided to the deficiencies. Applicant respectfully disagrees.

Derrick defines a prior art process known as "spinning," wherein requesting devices would read from the semaphore repeatedly until access to the shared resource was achieved (col. 1, lines 48-56). Then, in the section titled, "DISCLOSURE OF INVENTION," Derrick discloses his invention stating, "According to the present invention, a spin buffer is provided which allows for locking out accesses to each semaphore independently of accesses to other semaphores," (col. 2, lines 61-63).

In Claim 1, a machine that receives the semaphore modification requests identifies an ownership state of the semaphore and allows the first modification request to succeed if the identified ownership state corresponds to the first requesting device. Since that one machine accesses the semaphore to identify the ownership state, exclusive access to a semaphore is guaranteed and the locks of Derrick are not required.

In contrast, access to a semaphore of Derrick needs to be locked and unlocked by the requesting device to guarantee exclusive access and to allow another device to perform a semaphore operation--even to allow a device that currently owns the desired shared resource to relinquish ownership (col. 2, lines 33-37; Fig. 2, step 208, col. 3, line 67 through col. 4, line 2).

Applicant respectfully notes that Figs. 1 and 2 of Derrick illustrate the differences between the prior art and the invention of Derrick. Conspicuously, steps 108-110 and steps 206-208 differ only with regard to the semaphores that are not being accessed. The semaphore of Derrick being accessed clearly continues to be locked and unlocked by the requesting device (Fig. 2, 204, 208 and 210).

On the other hand, a machine that receives the semaphore modification requests, as set forth in Claim 1, identifies an ownership state of the semaphore, can arbitrate the

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requests and identify a modification request from a first processor to allow to succeed if the ownership state corresponds to the first processor.

The Examiner states that, "whether a lock or locks of Derrick is/are required must not be viewed as any differentiating element." Applicant respectfully intends that the relevant differentiating elements set forth by Claim 1 are identifying an ownership state of a semaphore, arbitrating to identify a first modification request from a first requesting device and allowing the first modification request to succeed if the identified ownership state corresponds to the first requesting device.

Such differentiating elements as set forth by Claim 1 are clearly not disclosed or suggested by the cited references, as the Examiner has admitted. Applicant believes that this issue is not in dispute, but the Examiner has maintained that such elements are obvious to one of skill in the art from the cited references.

Therefore, Applicant has respectfully pointed out that since according to embodiments of the present invention, one machine accesses the semaphore to identify the ownership state, exclusive access to a semaphore is guaranteed without requiring the locks of Derrick. The point being made is that since Derrick's invention is directed to a spin buffer that allows for independent locking of semaphores as opposed to the prior art method of locking all semaphores, elimination of locking as provided by the invention set forth in Claim 1 would not be obvious from the cited references.

Accordingly in light of the argument presented above, Applicant respectfully requests the Examiner withdraw the rejection of Claim 1.

Similarly, Claim 17 sets forth a multiprocessor comprising... a semaphore checker coupled to...: receive one or more semaphore modification requests..., identify an ownership state of the semaphore, arbitrate... and identify a first modification request from a first requesting processor..., allow the first modification request to succeed if the

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identified ownership state corresponds to the first requesting processor and... if the identified ownership state corresponds to no ownership.

Instead of a semaphore checker that receives requests, it is Derrick's requesting device that locks out other devices and checks to see if the shared resource is owned by another device (Fig. 2, steps 204 and 206, col. 3, lines 57-64).

While one device checks to see if a shared resource is available, other devices may access data in the spin buffer (col. 3, lines 5-8). In order to guarantee exclusive accesses, Derrick does not change the practice of requiring the requesting device to clear the lock bit even if the semaphore would indicate that the shared resource is not owned (Fig. 3, step 310, col. 4, lines 23-28). If the spin buffer of Derrick receives a request for a semaphore from a first requesting device before the lock bit has been cleared by another device, it can not allow the request to succeed even if the ownership state corresponds to the first requesting device or corresponds to no ownership. Since the spin buffer of Derrick does not check the ownership state, semaphore access can be granted to a spinning requesting device and denied to the device with ownership (Fig. 2, col. 3, lines 57-67).

On the other hand, a semaphore checker, as set forth in Claim 17, that identifies an ownership state of the semaphore can arbitrate and identify a modification request from a first processor to allow to succeed if the ownership state corresponds to the first processor.

Accordingly in light of the argument presented above, Applicant respectfully requests the Examiner withdraw the rejection of Claim 17.

Claim 8, sets forth a method comprising: receiving one or more semaphore modification requests...; identifying an ownership state of a semaphore corresponding to the... requests; arbitrating to identify a first modification request..., the first modification

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request from a first requesting device to succeed if the identified ownership state corresponds to the first requesting device....

The spin buffer of Derrick does not identify an ownership state of the semaphore and arbitrate to identify a modification request, the first modification request from a first requesting device to succeed if the identified ownership state corresponds to the first requesting device.

Accordingly in light of the argument presented above, Applicant respectfully requests the Examiner withdraw the rejection of Claim 8.

Claim 14 sets forth a multiprocessor system comprising: means for receiving... semaphore modification ...; means for identifying an ownership state of a semaphore ...; means for arbitrating to identify a first modification request... from a first requesting device; means for granting the first modification request if the identified ownership state corresponds to the first requesting device....

Applicant submits that the combination of Derrick and Dao should not be considered equivalent under 35 U.S.C. 112, paragraph six, to the subject matter set forth in claim 14.

The MPEP § 2181 states that:

> When making a determination of patentability under 35 U.S.C 102 or 103, past practice was to interpret a "means or step plus function" limitation by giving it the "broadest reasonable interpretation." Under the PTO's long-standing practice this meant interpreting such a limitation as reading on any prior art means or step which performed the function specified in the claim without regard for whether the prior art means or step was equivalent to the corresponding structure, material or acts described in the specification. However, in Donaldson, the Federal Circuit stated:

> Per our holding, the "broadest reasonable interpretation" that an examiner may give means-plus-function language is that statutorily mandated in paragraph six. Accordingly, the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a patentability determination.

While Applicant intends that the broadest reasonable interpretation should be given to claims 1-13 and 17-30, the means-plus-function form of claim 14 may not be modified by Applicant with language containing sufficient structure, material or acts for achieving the

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specified function. Therefore claim 14 should be construed to cover the corresponding structure, material or acts described in the specification and equivalents thereof.

The Examiner has responded that, "it is the claims that define the claimed invention, and it is claims, not specification that are anticipated or unpatentable. *Constant v. Advanced Micro-Devices Inc.*, 7 USPQ2d 1064." Applicant respectfully directs the Examiner to the attached guidelines issued April 20, 1994 (approximately six years following *Constant*) after *In re Donald son*, 29 USPQ2d 1845 (Fed. Cir. 1994), which are now incorporated into the MPEP.

Applicant respectfully submits that the spin buffer of Derrick does not identify an ownership state of the semaphore, arbitrate to identify a first modification request from a first requesting device, and grant the first modification request if the identified ownership state corresponds to the first requesting device. For example, instead of a semaphore checker that receives requests as disclosed by Applicant, it is Derrick's requesting device that locks out other devices and checks to see if the shared resource is owned by another device (Fig. 2, steps 204 and 206, col. 3, lines 57-64). Applicant respectfully submits that a centralized semaphore checker, which eliminates the need for locking out devices would not be obvious from the cited references.

Therefore, Derrick does not disclose or make obvious equivalent means for identifying an ownership state of a semaphore, or equivalent means for granting the first modification request if the identified ownership state corresponds to a first requesting device.

Applicant has respectfully provided reasons from teachings in the prior art reference to show non-equivalence to meet Applicant's burden.

Accordingly, at least in light of the arguments presented above, Applicant respectfully requests the Examiner withdraw the rejection of Claim 14.

With regard to Claim 24, The spin buffer of Derrick does not check the semaphores but rather caches them and allows a requesting device to check if a shared resource is owned by another device (col. 3, lines 61-65). Applicant respectfully submits that since the requesting device simply locks out accesses by other devices to the same semaphore, Derrick's spin buffer is not a semaphore checker as asserted by the Examiner and the cited reference provides no discussion or suggestion of a semaphore checker coupled to a semaphore to allow access to a shared resource as claimed. Accordingly, Applicant respectfully requests the Examiner withdraw the rejection of Claim 24.

Therefore, Applicants respectfully submit that Claims 1, 8, 14, 17 and 24 are patently distinguished over the art cited by the Examiner. Applicants further believe that Claims 2-7, 9-13, 15-16, 18-23, and 25-30 being dependent therefrom are also patentable. Applicants respectfully request the Examiner withdraw his rejection under 35 U.S.C. 103(a).

Applicants, therefore, believe that Claims 1-30 are presently in condition for allowance and such action is earnestly solicited.

CONCLUSION

Applicants respectfully submit the present claims for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Lawrence M. Mennemeier at (408) 765-2194.

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Authorization is hereby given to charge our Deposit Account No. 02-2666 for any

charges that may be due.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: _5-3-2005_

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Attachments

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